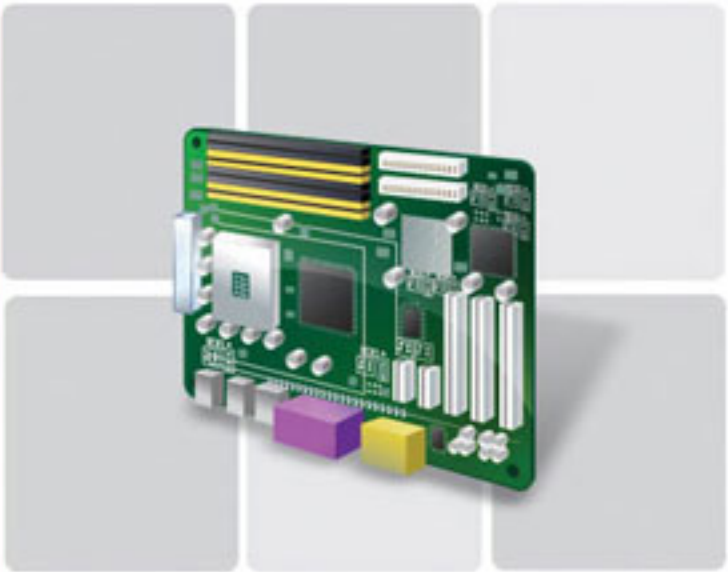
BOMEX

User Manual

Motherboard - Intel i3



POS Model:
-Xtreme-POS

Version: 20130901

FCC Information and Copyright

This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation.

The vendor makes no representations or warranties with respect to the contents here and specially disclaims any implied warranties of merchantability or fitness for any purpose. Further the vendor reserves the right to revise this publication and to make changes to the contents here without obligation to notify any party beforehand.
Duplication of this publication, in part or in whole, is not allowed without first obtaining the vendor's approval in writing.

The content of this user's manual is subject to be changed without notice and we will not be responsible for any mistakes found in this user's manual. All the brand and product names are trademarks of their respective companies.

CE

Dichiarazione di conformità sintetica
Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002
Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive 2004/108/CE, 2006/95/CE e 1999/05/CE quando ad esso applicabili

Short Declaration of conformity
We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives 2004/108/CE, 2006/95/CE and 1999/05/CE whenever these laws may be applied

Table Of Contents

FCC Information and Copyright 1

Chapter 1: Introduction 3

1.1 Before You Start 3
1.2 Package Checklist 3
1.3 Specifications 4

Chapter 2: Hardware installation 8

2.1 Installing Central Processing Unit (CPU) 8
2.2 Install a Cooler 9
2.3 Connect Cooling Fans 10
2.4 Installing System Memory 10
2.5 Expansion Slots 11
2.6 Power Supply 11
2.7 Jumpers / Headers / Connectors 12

Chapter 3: BIOS Setup 21

3.1 Main Menu 22
3.2 Advanced Menu 23
3.3 Chipset Menu 37
3.4 Boot Menu 45
3.5 Security Menu 47
3.6 Exit Menu 48

Chapter 4: Useful help 49

4.1 Driver Installation 49
4.2 AMI BIOS Beep Code 50
4.3 AMI BIOS post code 50
4.4 Troubleshooting 52

Chapter 1: Introduction

1.1 Before You Start

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
- Always disconnect the computer from power outlet before operation.
- Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
- Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
- Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
- Keep the computer from dangerous area, such as heat source, humid air and water.
- The operating temperatures of the computer should be 0 to 45 degrees Celsius.
- To avoid injury, be careful of:
  Sharp pins on headers and connectors
  Rough edges and sharp corners on the chassis
  Damage to wires that could cause a short circuit

1.2 Package Checklist

- Mini-ITX Mainboard x 1
- Fully Setup Driver DVD x 1
- I/O Bracket x 1
- SATA Cable x 1

Note

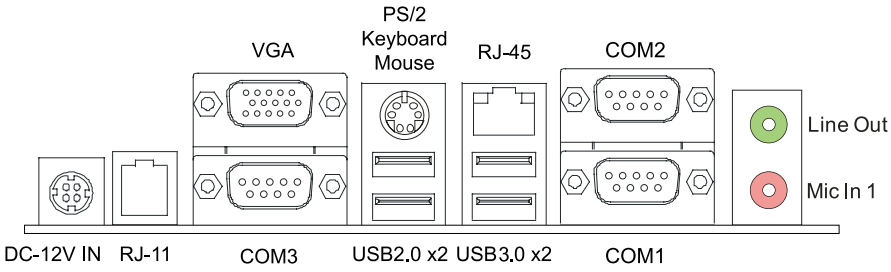
» *The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.*

1.3 Specifications

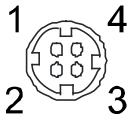
CPU	Socket G(rPGA-989) Support IVY & Sandy Bridge Intel® Core i5/i3 Dual Cores CPU Support: Intel® Core i5-3210M (2.5GHz@35W) Intel® Core i3-3110M (2.4GHz@35W) Intel® Core i5-2540M (2.6GHz@35W)	
Chipset	Intel HM76 Express Chipset	
Graphic	Integrated Intel® HD Graphics 4000 series graphic engine supports: Frequency: Intel® Core i5-3210M (GT2-4000) 350MHz-900MHz Intel® Core i3-3110M (GT2-4000) 350MHz-900MHz Intel® Core i5-2540M (GT2-3000) 650MHz-1100MHz Dual independent displays (Extended mode) as below two: -- Integrated VGA D-Sub -- Integrated LVDS dual channel 18/24Bits -- Integrated HDMI(Optional, Co-lay with COM port & DC output)	
Super I/O	FINTEK F81866AD-I Provides the most commonly used legacy Super I/O functionality. 128pin type Environment Control initiatives, H/W Monitor, Fan Speed Controller	
Main Memory	2x SO-DIMM (204pin) Slot, DDR3 1333 MHz, Max 8GB Registered DIMM or ECC DIMM is not supported	
SATA	Chipset built-in Serial ATA controller SATA Version 2.0/3.0 specification compliant Data transfer rates up to 3.0/6.0 Gb/s	
LAN	Realtek RTL 8111F 10 / 100 / 1000 Mb/s auto negotiation, Half / Full duplex capability	
Sound Codec	Realtek Codec ALC892, supports Line-out/Mic-in. with output class D 3 Watt/Channel Amplifier , w/ disable output function	
Expansion Slot	1x PCIe slot 1x Mini PCIe slot (with one SIM card signal connector)	
Back Panel I/O	1x DC-12V 4-pin Power Input Connector 1x VGA Port 1x RJ-11 Port 1x PS/2 Keyboard/ Mouse 1x RJ-45 Port 2x USB3.0 Port 2x USB2.0 Port 3x Serial Port 2x Audio Jack (Line-out/Mic-in) 1x DC-12V 2-pin Power Output Jack (Optional, co-lay with COM3) 1x HDMI Port (Optional, co-lay with COM3)	
On Board Connectors & Headers	2x SATA3 Connector 1x HDD Power Connector 1x Front Panel Header 1x CPU Fan Header 1x System Fan Header 1x Clear CMOS Jumper 1x LVDS Connector 1x Inverter Header 1x LCD Backlight Inverter Power Select Jumper 1x LCD Panel Backlight Inverter Power Select Jumper 1x Backlight Control Mode Selection Jumper 2x Amplifier Header 3x USB 2.0 Header	4x Serial Port Header 4x Serial Port Power Select Jumper 2x RS-232/422/485 Select Jumper 1x RJ-11 Header for Cash Drawer 1x RJ-11 Power Select Jumper 1x Parallel Port Header 1x Digital I/O Header 1x MSR Connector 2x MSR Jumper 2x Power Connector 1x SIM Card Header 1x VGA Header (Optional)
Board Size	170 mm (W) x 170 mm (L), Mini-ITX	
Qualification	CE, FCC, BSMI , VCCI , C-Tick ClassA	
OS Support	Windows 7 Ultimate 32/64 bits, Windows 8.0, Windows XP, Fedora Core 14 reserves the right to add or remove support for any OS with or without notice.	

1.4 Rear Panel Connectors

Standard

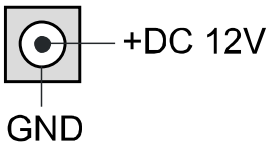


DC-12V Input Connector

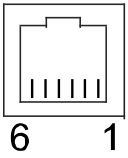


Pin	Assignment
1	+12V DC_IN
2	GND
3	GND
4	+12V DC_IN

DC-12V Output Jack (Max. 2A)

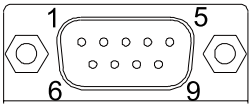


RJ-11 pin define



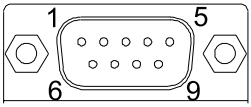
Pin	Define	Status Pin	Control Pin	GPIO	ADD.
1	CASE OPEN#2	CASE OPEN#2	---	50	IO:538(BIT18)
2	CASH1 _P	---	CASH1 _P	19	IO:50C(BIT19)
3	CASE OPEN#	CASE OPEN#	---	52	IO:538(BIT20)
4	CASH_PWR	---	---	---	---
5	CASH2_P	---	CASH2_P	21	IO:50C(BIT21)
6	GND	---	---	---	---

COM1 Connector



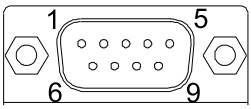
Pin	Assignment
1	Carrier detect (DCD)
2	Received data (RXD)
3	Transmitted data (TXD)
4	Data terminal ready (DTR)
5	Signal ground (GND)
6	Data set ready (DSR)
7	Request to send (RTS)
8	Clear to send (CTS)
9	Ring or 5V or 12V (selected by BIOS setting)

COM2 Connector



Pin	Assignment
1	Carrier detect (DCD)
2	Received data (RXD)
3	Transmitted data (TXD)
4	Data terminal ready (DTR)
5	Signal ground (GND)
6	Data set ready (DSR)
7	Request to send (RTS)
8	Clear to send (CTS)
9	0V or 5V or 12V (selected by BIOS setting)

COM3 Connector

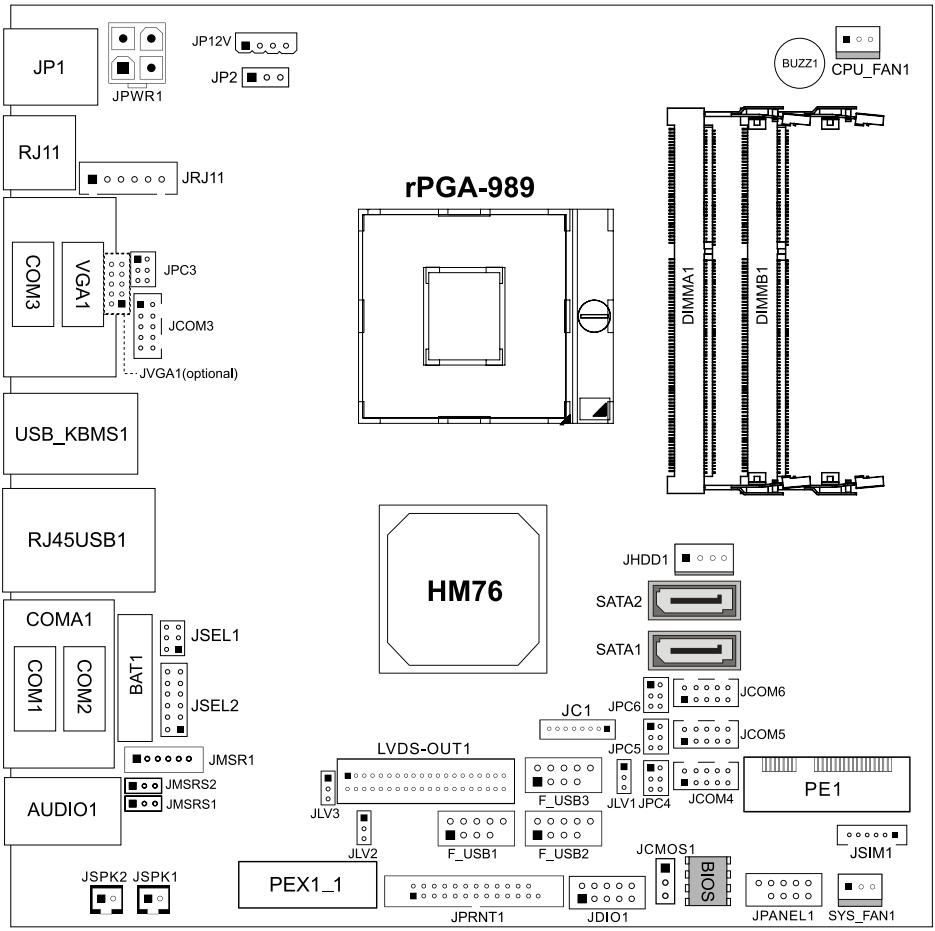


Pin	Assignment
1	Carrier detect (DCD)
2	Received data (RXD)
3	Transmitted data (TXD)
4	Data terminal ready (DTR)
5	Signal ground (GND)
6	Data set ready (DSR)
7	Request to send (RTS)
8	Clear to send (CTS)
9	0V or 5V or 12V (selected by jumper setting)

Note

» *Note1: COM1/2 voltage selection is controlled by BIOS setup. Please see page-34 for detail setting.*
» *Note2: COM1 RS-232/422/485 selection is controlled by JSEL1/JSEL2. Please see page-14 for detail setting.*
» *Note3: COM3 voltage selection is controlled by JPC3. Please see page-15 for detail setting.*

1.5 Motherboard Layout



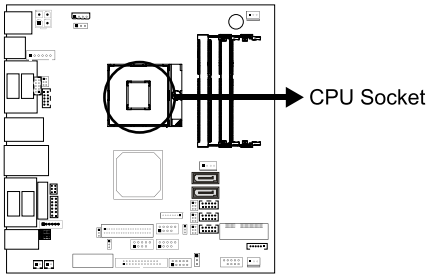
Note

» ■ *represents the 1st pin.*

Chapter 2: Hardware installation

2.1 Installing Central Processing Unit (CPU)

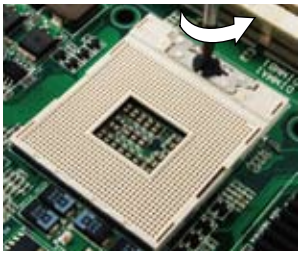
Step 1: Locate the CPU socket on the motherboard

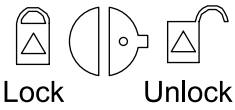


Note

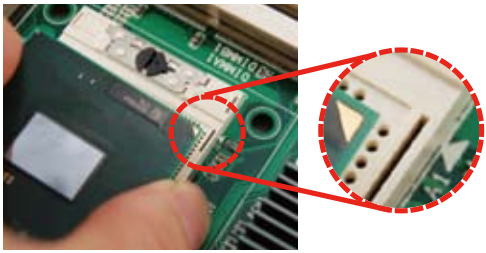
» *Do not touch processor contacts to prevent damaging the CPU.*

Step 2: Using a screwdriver, disengage (Unlock) the socket actuator, as shown in figure below.

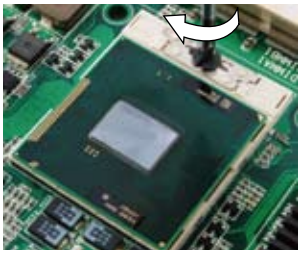


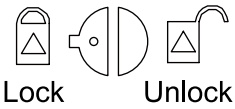


Step 3: Align the gold triangle on the CPU with the similar marking on the socket. If the processor does not drop completely into the socket, turn the socket actuator to the open position until the processor drops completely in.



Step 4: While gently holding the processor down with your finger, secure the processor in the socket with a screwdriver by turning the socket actuator to the "Lock" position.





Note

» *The CPU fits only in one correct orientation. Do not force the CPU into the socket to prevent damaging the CPU.*

2.2 Install a Cooler

The system must not be operated without a cooler (heat sink and fan) to provide the necessarily cooling. Install the cooling unit supplied as follows:

1. Install the correct CPU as described above.
2. Align the screw holes of the cooler rear retention bracket with the mounting holes on the underside of the motherboard, located at the four corners of the CPU location. Insert into the holes and turn the motherboard over.
3. Place the cooler assembly on top of the CPU with the cooling fins aligned with the memory slots. This will allow the fan to provide cooling the chipset heatsink. Align the screws with the screw holes of the rear retention bracket.
4. Tighten each screw halfway to secure the cooler assembly to the motherboard. Then gradually tighten all four screws. Do not fully tighten the first screw before partially tightening the other screws as this may apply uneven pressure to the CPU, causing damage.

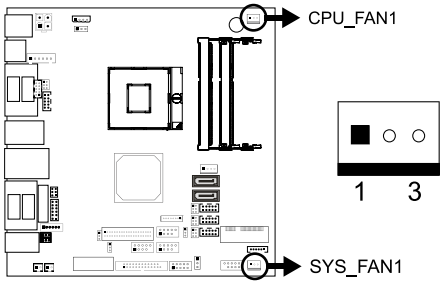
Note

» *Be careful not to touch the thermal pad on the underside of the heatsink. This pad is made of thermal compound and is deformable. It is designed to make optimal thermal contact with the CPU. No additional thermal compound is required.*
» *Make sure that good thermal contact is made between the processor and heat sink. Insufficient contact or incorrect use of heat sink, fan, or thermal compound can cause the processor to overheat, which may crash the system or cause permanent damage to the CPU.*
» *Do not forget to connect the CPU fan connector.*
» *For proper installation, please kindly refer to the installation manual of your CPU cooler.*

2.3 Connect Cooling Fans

These fan headers support cooling-fans built in the computer. The fan cable and connector may be different according to the fan manufacturer. Connect the fan cable to the connector while matching the black wire to pin#1.

CPU_FAN1: CPU fan header
SYS_FAN1: System fan header



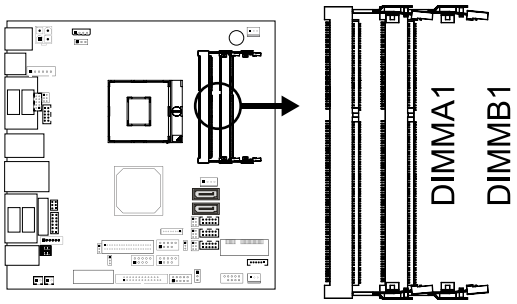
CPU_FAN1	
Pin	Assignment
1	Ground
2	Smart Fan Control
3	FAN RPM rate sense
SYS_FAN1	
Pin	Assignment
1	Ground
2	+12V
3	FAN RPM rate sense

Note

» *System Fan Headers support 3-pin head connectors. When connecting with wires onto connectors, please note that the red wire is the positive and should be connected to pin#2, and the black wire is Ground and should be connected to GND.*

2.4 Installing System Memory

DIMMA1/B1: Memory Module (204pin SO-DIMM)



Note

» *If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.*

1. Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.
2. Insert the DIMM firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.

Memory Capacity

DIMM Socket Location	DDR3 Module	Total Memory Size
DIMMA1	512MB/1GB/2GB/4GB	Max is 8GB
DIMMB1	512MB/1GB/2GB/4GB	

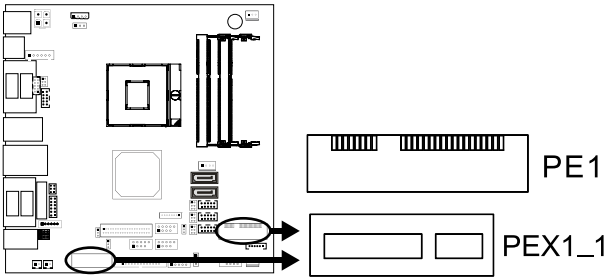
2.5 Expansion Slots

PEX1_1: PCI-Express x1 Slot

- PCI-Express 2.0 compliant.
- Data transfer bandwidth up to 500MB/s per direction; 1GB/s in total.
- PCI-Express supports a raw bit-rate of 2.5Gb/s on the data pins.

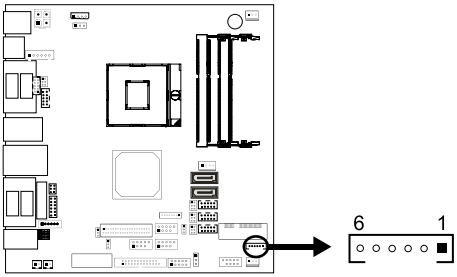
PE1: Mini PCI-E Slot (mSATA function is optional)

This mainboard is equipped with 1 Mini PCI-E Slot.



JSIM1: SIM card header

This mainboard is equipped with one SIM card header for Mini PCI-E Slot.

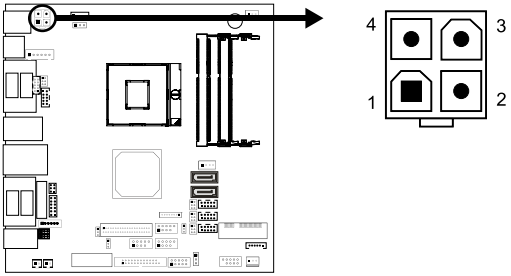


Pin	Assignment
1	GND
2	UIM_RESET
3	UIM_CLK
4	UIM_DATA
5	UIM_VPP
6	UIM_PWR

2.6 Power Supply

JPWR1: ATX Power Source Connector (4-pin)

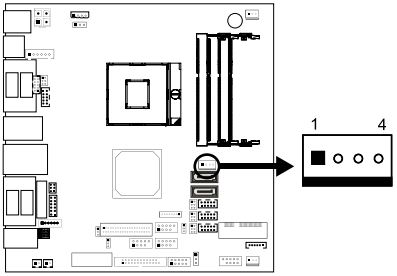
This connector provides or +12V input to system power circuit.



Pin	Assignment
1	+12V in
2	+12V in
3	Ground
4	Ground

JHDD1: HDD Power Connector

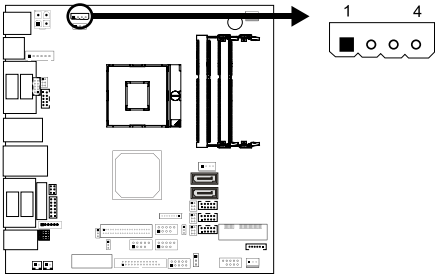
This connector provides power connection of SATA devices.



Pin	Assignment
1	+12V output
2	GND
3	GND
4	+5V output

JP12V: 12V Output Power Connector

This connector provides power connection of 12V output.



Pin	Assignment
1	+12V output
2	GND
3	GND
4	NA

2.7 Jumpers / Headers / Connectors

Jumper Setting

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.

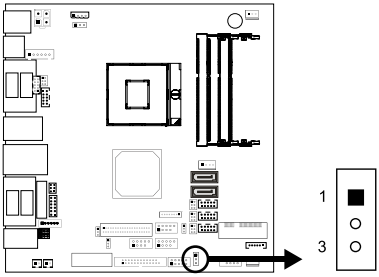
Pin opened

Pin closed

Pin 1-2 closed

JCMOS1: Clear CMOS Jumper

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the motherboard.



Pin 1-2 Close: Normal Operation (Default)

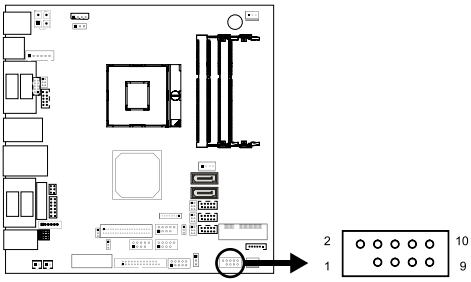
Pin 2-3 Close: Clear CMOS data

Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to "Pin 2-3 close".
3. Wait for five seconds.
4. Set the jumper to "Pin 1-2 close".
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

JPANEL1: Front Panel Header

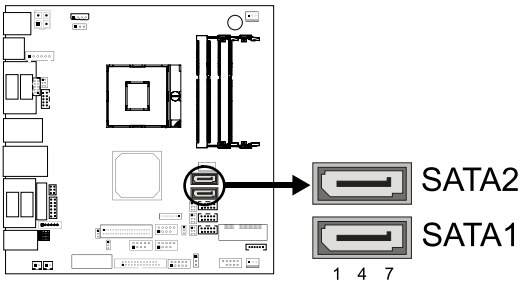
This 10-pin header includes Power-on, Reset, HDD LED, and Power LED connection. It allows user to connect the system case's front panel switch functions.



Function	Pin	Assignment	Function	Pin	Assignment
N/A	1	Key	Power LED	2	Power LED
HDD LED	3	HD LED+		4	Power LED+
	5	HD LED-		6	Power LED-
Reset Button	7	Reset	Power Button	8	Power
	9	Reset GND		10	Power GND

SATA1/SATA2: Serial ATA 6.0 Gb/s Connectors

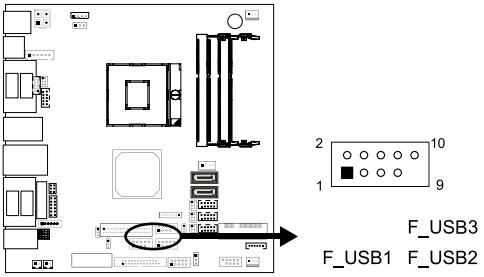
These connectors support the thin Serial ATA cable for primary internal storage devices.



Pin	Assignment
1	Ground
2	TX+
3	TX-
4	Ground
5	RX-
6	RX+
7	Ground

F_USB1/2/3: USB 2.0 Header

The mainboard provides USB 2.0 pin header. Each header allows you to connect 2 additional USB 2.0 ports.

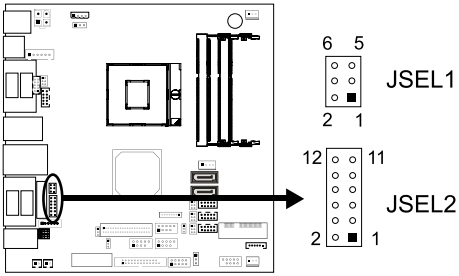


Pin	Assignment	Pin	Assignment
1	+5V (fused)	2	+5V (fused)
3	USB -	4	USB -
5	USB +	6	USB +
7	Ground	8	Ground
9	Key	10	NC

Serial Port Connectors & Headers

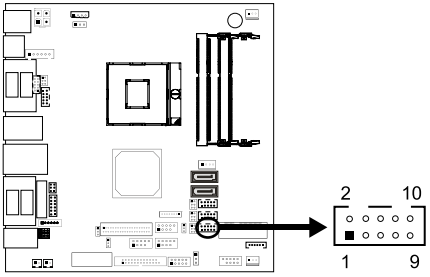
JSEL1/JSEL2: RS-232/422/485 Switch Headers for COM1

The headers determine that COM1 belongs to RS-232 (Default), 422, or 485.



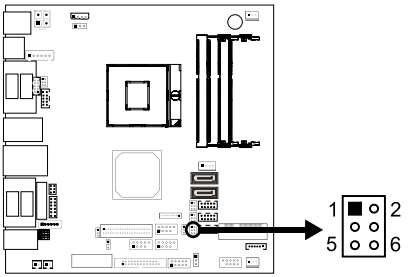
JSEL1		
1-2	RS-232	
3-4	RS-422	
5-6	RS-485	
JSEL2		
RS-232	RS-422	RS-485
1-3	3-5	3-5
2-4	4-6	4-6
7-9	9-11	9-11
8-10	10-12	10-12

JCOM4: Serial Port Header



Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	Ring / 5V / 12V	10	NA

JPC4: Serial Port Voltage Switch Jumper for JCOM4

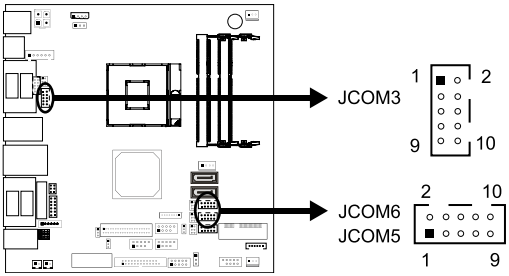


Pin 1-2 Close: Pin9=Ring (Default)

Pin 3-4 Close: Pin9= 5V

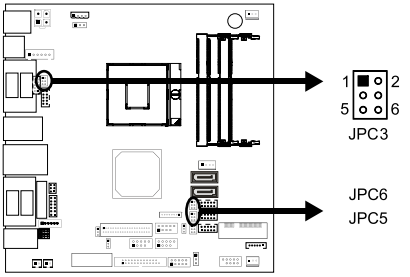
Pin 5-6 Close: Pin9=12V

JCOM3/JCOM5/JCOM6: Serial Port Headers



Pin	Assignment	Pin	Assignment
1	DCD	2	RXD
3	TXD	4	DTR
5	GND	6	DSR
7	RTS	8	CTS
9	0V / 5V / 12V	10	NA

JPC3/JPC5/JPC6: Serial Port Voltage Switch Jumpers for JCOM3/JCOM5/JCOM6



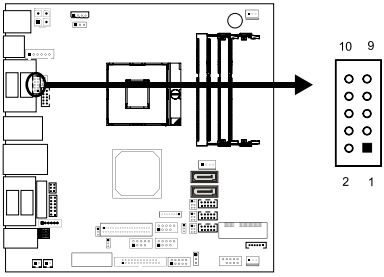
Pin 1-2 Close: Pin9=0V (Default)

Pin 3-4 Close: Pin9= 5V

Pin 5-6 Close: Pin9=12V

JVGA1: VGA Connector (Optional)

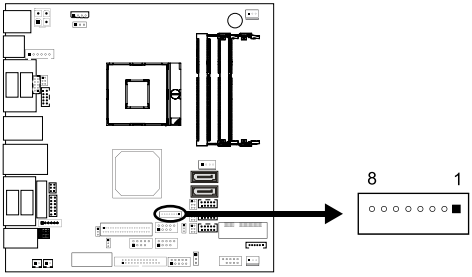
This header allows you to connect VGA



Pin	Assignment
1	VGA_P5V
2	C_VGA_RED
3	VGA_5VDDCLK
4	C_VGA_GREEN
5	VGA_5VDDA
6	C_VGA_BLUE
7	VSYNC_C
8	GND
9	HSYNC_C
10	GND

JC1: LCD Backlight Inverter Connector

This connector is for connecting to LCD for providing backlight control function. It is strongly recommended to use the matching JOY DAY INDUSTRIAL - A1250WV-S-8P connector.

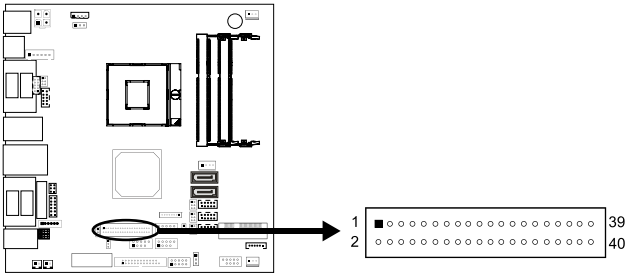


Pin	Assignment
1	DC 5V/12V (selected by JLV1)
2	DC 5V/12V (selected by JLV1)
3	NC
4	NC
5	Backlight On
6	Brightness Adjust
7	GND
8	GND

LVDS-OUT1: LVDS Connector

This connector supports 18/24 bit single-channel panels.

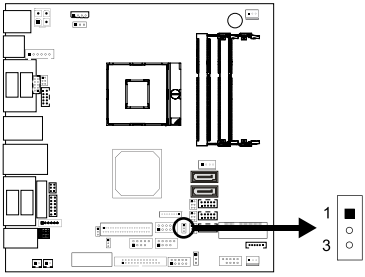
» *It is strongly recommended to use the matching JOY DAY INDUSTRIAL - A1252WV-SF-2X20PD01 connector.*



Pin	Assignment	Pin	Assignment
1	LVDSB_DATA0_N	2	PVDD2, 3.3V/5V (selected by JLV2)
3	LVDSB_DATA0_P	4	PVDD2, 3.3V/5V (selected by JLV2)
5	GND	6	GND
7	LVDSB_DATA1_N	8	GND
9	LVDSB_DATA1_P	10	LVDSA_DATA0_N
11	GND	12	LVDSA_DATA0_P
13	LVDSB_DATA2_N	14	GND
15	LVDSB_DATA2_P	16	LVDSA_DATA1_N
17	GND	18	LVDSA_DATA1_P
19	LVDSB_CLK_N	20	GND
21	LVDSB_CLK_P	22	LVDSA_DATA2_N
23	GND	24	LVDSA_DATA2_P
25	LVDSB_DATA3_N	26	GND
27	LVDSB_DATA3_P	28	LVDSA_CLK_N
29	+5V	30	LVDSA_CLK_P
31	LVDSA_DDC-CLK	32	GND
33	+3.3V	34	LVDSA_DATA3_N
35	NC	36	LVDSA_DATA3_P
37	PVDD2, 3.3V/5V (selected by JLV2)	38	NC
39	PVDD2, 3.3V/5V (selected by JLV2)	40	LVDSA_DDC_DATA

JLV1: LCD Backlight Inverter Power Select Jumper

This jumper is for selecting LCD Backlight Inverter Power

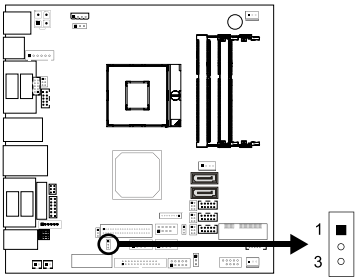


Pin 1-2 Close: Inverter Power=5V

Pin 2-3 Close: Inverter Power=12V (Default)

JLV2: LCD Panel Power Select Jumper

This jumper is for selecting LCD Power(PVDD2).

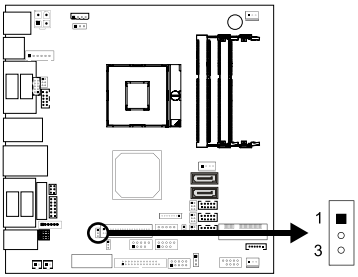


Pin 1-2 Close: Inverter Power=3.3V (Default)

Pin 2-3 Close: Inverter Power=5V

JLV3: Backlight Control Mode Selection Jumper

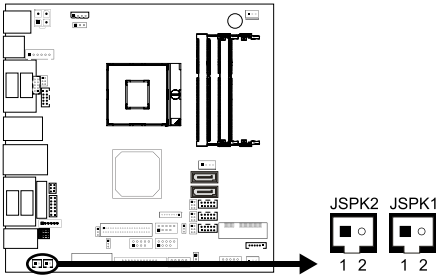
This jumper is for selecting backlight control mode.



Pin 1-2 Closed: Voltage Level Mode (Default)

Pin 2-3 Closed: PWM Mode

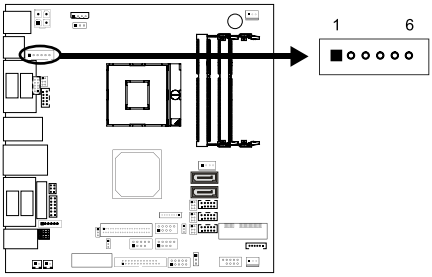
JSPK1/JSPK2: Amplifier Headers



JSPK1	
Pin	Assignment
1	SPKRN
2	SPKRP
JSPK2	
Pin	Assignment
1	SPKLN
2	SPKLP

JRJ11: Cash Draw Header

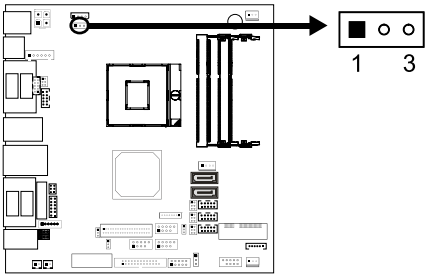
This onboard header is for cash drawer function, but when it is in use, you can not use the I/O RJ11 connector.



Pin	Assignment
1	CASEOPEN#2
2	CASH1_P
3	CASEOPEN#
4	CASH_PWR
5	CASH2_P
6	GND

JP2: Voltage Switch Header for Cash Draw Connector

This header is for controlling the Pin4 of RJ11(JRJ11) to switch 12V or 24V.

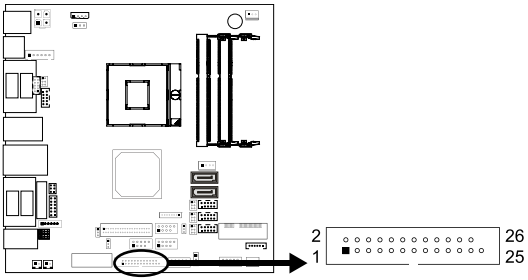


Pin 1-2 Close: Pin4 of RJ11(JRJ11)=24V (Default)

Pin 2-3 Close: Pin4 of RJ11(JRJ11)=12V

JPRNT1: Printer Port Connector

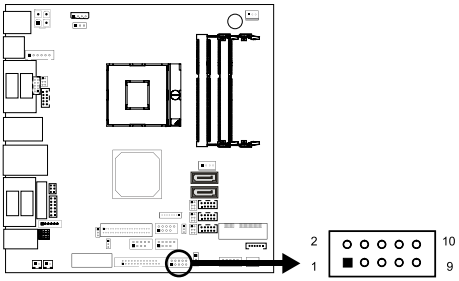
This header allows you to connect printer port on the PC.



Pin	Assignment	Pin	Assignment
1	-Strobe	2	-ALF
3	Data 0	4	-Error
5	Data 1	6	-Init
7	Data 2	8	-Scltin
9	Data 3	10	Ground
11	Data 4	12	Ground
13	Data 5	14	Ground
15	Data 6	16	Ground
17	Data 7	18	Ground
19	-ACK	20	Ground
21	Busy	22	Ground
23	PE	24	Ground
25	SCLT	26	Key

JDIO1: Digital I/O Connector

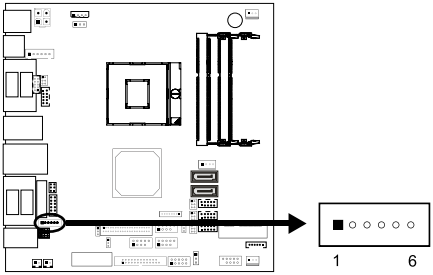
This connector offers 4-pair of digital I/O functions and address is set in BIOS.



Pin	Assignment	Address	GPIO
1	5V	--	--
2	DI-01	548H BIT7	GPIO71
3	DO-01	50CH BIT7	GPIO7
4	DI-02	548H BIT6	GPIO70
5	DO-02	50CH BIT6	GPIO6
6	DI-03	548H BIT5	GPIO69
7	DO-03	50CH BIT1	GPIO1
8	DI-04	548H BIT4	GPIO68
9	DO-04	50CH BIT17	GPIO17
10	GND	--	--

JMSR1: MSR Connector

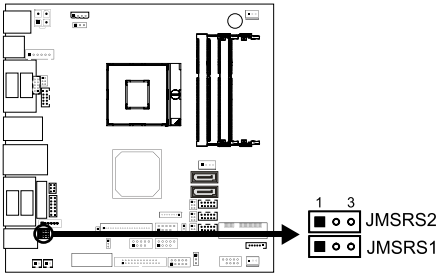
The mainboard provides MSR connector.



Pin	Assignment
1	PS2CLK
2	PS2DAT
3	KCLK
4	KDAT
5	GND
6	+5V

JMSRS1/JMSRS2: MSR Jumper

The jumpers enable or disable MSR connector function.



Pin 1-2 Close:JMSR1 Disabled (Default)

Pin 2-3 Close: JMSR1 Enabled

Chapter 3: BIOS Setup

Introduction

The purpose of this manual is to describe the settings in the AMI UEFI BIOS Setup program on this motherboard. The Setup program allows users to modify the basic system configuration and save these settings to NVRAM.

UEFI BIOS determines what a computer can do without accessing programs from a disk. This system controls most of the input and output devices such as keyboard, mouse, serial ports and disk drives. BIOS activates at the first stage of the booting process, loading and executing the operating system. Some additional features, such as virus and password protection or chipset fine-tuning options are also included in UEFI BIOS.

The rest of this manual will to guide you through the options and settings in UEFI BIOS Setup.

Plug and Play Support

This AMI UEFI BIOS supports the Plug and Play Version 1.0A specification.

EPA Green PC Support

This AMI UEFI BIOS supports Version 1.03 of the EPA Green PC specification.

ACPI Support

AMI ACPI UEFI BIOS support Version 1.0/2.0 of Advanced Configuration and Power interface specification (ACPI). It provides ASL code for power management and device configuration capabilities as defined in the ACPI specification, developed by Microsoft, Intel and Toshiba.

PCI Bus Support

This AMI UEFI BIOS also supports Version 2.3 of the Intel PCI (Peripheral Component Interconnect) local bus specification.

DRAM Support

DDR3 SDRAM (Double Data Rate III Synchronous DRAM) is supported.

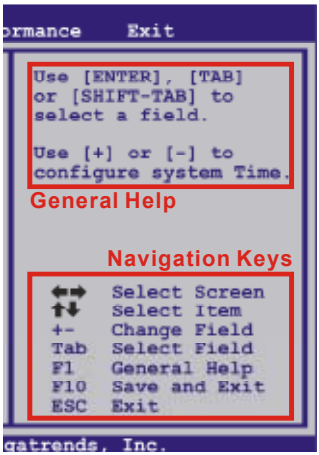
Supported CPUs

This AMI UEFI BIOS supports the latest CPU.

Using Setup

When starting up the computer, press <Del> during the Power-On Self-Test (POST) to enter the UEFI BIOS setup utility.

In the UEFI BIOS setup utility, you will see General Help description at the top right corner, and this is providing a brief description of the selected item. Navigation Keys for that particular menu are at the bottom right corner, and you can use these keys to select item and change the settings.



Note

» *The default UEFI BIOS settings apply for most conditions to ensure optimum performance of the motherboard. If the system becomes unstable after changing any settings, please load the default settings to ensure system's compatibility and stability. Use Load Setup Default under the Exit Menu.*

» *For better system performance, the UEFI BIOS firmware is being continuously updated. The UEFI BIOS information described in this manual is for your reference only. The actual UEFI BIOS information and settings on board may be slightly different from this manual.*

» *The content of this manual is subject to be changed without notice. We will not be responsible for any mistakes found in this user's manual and any system damage that may be caused by wrong-settings.*

3.1 Main Menu

Once you enter AMI UEFI BIOS Setup Utility, the Main Menu will appear on the screen providing an overview of the basic system information.

BIOS Information

Shows system information including UEFI BIOS version, model name, marketing name, built date, etc.

Memory Frequency

Shows the system memory frequency.

Total Memory

Shows system memory size, VGA shard memory will be excluded.

System Date

Set the system date. Note that the 'Day' automatically changes when you set the date.

System Time

Set the system internal clock.

Access Level

Shows the access level of current user.

3.2 Advanced Menu

The Advanced Menu allows you to configure the settings of CPU, Super I/O, Power Management, and other system devices.

Note

» *Beware of that setting inappropriate values in items of this menu may cause system to malfunction.*
» *The options and default settings might be different by RAM or CPU models.*

Launch PXE OpROM

This item enables or disables boot Options for legacy network devices with option ROM.
Options: Disabled (Default) / Enabled

Launch Storage OpROM

This item enables or disables boot Options for legacy mass storage devices with option ROM.
Options:Enabled (Default) / Disabled

Launch Video OpROM

This item enables or disables execution of the legacy option ROM for video devices.
Options:Enabled (Default) / Disabled / Enabled when no UEFI Driver

PCI Subsystem Settings

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
PCI Option ROM Handling
PCI ROM Priority [Legacy ROM]
PCI 64bit Resources Handling
Above 4G Decoding [Disabled]
PCI Common Settings
PCI Latency Timer [32 PCI Bus Clocks]
VGA Palette Snoop [Disabled]
PERR# Generation [Disabled]
SERR# Generation [Disabled]
PCI Express Settings
In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

PCI ROM Priority

In case of multiple option ROMs (Legacy and EFI Compatible), this item specifies what PCI Option ROM to launch

Options: Legacy ROM (Default) / EFI Compatible ROM

Above 4G Decoding

Enables or disables 64bit capable device to be decoded in above 4G address space (only if system support 64 bit PCI decoding).

Options: Disabled (Default) / Enabled

PCI Latency Timer

This item sets the value to be programmed into PCI Latency Timer Register.

Options: 32 PCI Bus Clocks (Default) / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

VGA Palette Snoop

Enables or disables VGA palette registers snooping.

Options: Disabled (Default) / Enabled

PERR# Generation

Enables or disables PCI device to generate SERR#.

Options: Disabled (Default) / Enabled

SERR# Generation

Enables or disables PCI device to generate SERR#.

Options: Disabled (Default) / Enabled

PCI Express Settings

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
PCI Express Device Register Settings
Relaxed Ordering [Disabled]
Extended Tag [Disabled]
No Snoop [Enabled]
Maximum Payload [Auto]
Maximum Read Request [Auto]
PCI Express Link Register Settings
ASPM [Disabled]
WARNING: Enabling ASPM may cause some PCI-E devices to fail
Extended Synch [Disabled]
Link Training Retry [5]
Link Training Timeout (uS) 100
Unpopulated Links [Keep Link ON]
Enables or Disables PCI Express Device Relaxed Ordering.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Relaxed Ordering
Enables or disables PCI express device No snoop option.
Options: Disabled (Default) / Enabled

Extended Tag
If enabled allows device to use 8-bit tab field as a requester.
Options: Disabled (Default) / Enabled

No Snoop
This item enables or disables PCI Express Device No Snoop option.
Options: Enabled (Default) / Disabled

Maximum Payload
This item sets Maximum Payload of PCI Express Device or allows System BIOS to select the value.
Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

Maximum Read Request
This item sets Maximum Read Request Size of PCI Express Device or allows System BIOS to select the value.
Options: Auto (Default) / 128 Bytes / 256 Bytes / 512 Bytes / 1024 Bytes / 2048 Bytes / 4096 Bytes

ASPM
This item sets the ASPM (Active State Power Management Settings) Level: Force L0 – Force all links to LO State; Auto – BIOS auto configures; Disabled – Disables ASPM.
Options: Disabled (Default) / Auto / Force L0s

Extend Synch
If enabled allows generation of extended synchronization patterns.
Options: Disabled (Default) / Enabled

Link Training Retry
Defines number of retry attempts software will take to retrain the link if previous training attempt was unsuccessful.
Options: 5 (Default) / Disabled / 2 / 3

Link Training Timeout (uS)

Defines number of microseconds software will wait before polling 'Link Training' bit in link status register. Value range is from 10 to 1000 uS.

Options: 100 (Default)

Unpopulated Links

In order to save power, software will disable unpopulated PCI Express links, if this option set to 'Disable Link'.

Options: Keep Link ON (Default) / Disable Link

ACPI Settings

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
ACPI Settings
Enable ACPI Auto Configuration [Disabled]
Enable Hibernation [Enabled]
ACPI Sleep State [S1 (CPU Stop Clock)]
Lock Legacy Resources [Disabled]
S3 Video Repost [Disabled]
PME Wake up from S5 [Disabled]
Wake system with Fixed Time [Disabled]
Wake up date [EveryDay]
Wake up hour 0
Wake up minute 0
Wake up second 0
USB Device Wakeup from S3/S4 [Disabled]
Restore AC Power Loss [Power Off]
Ring-In Wake up from S5 [Disabled]
PS2 Keyboard PowerOn [Disabled]
PS2 Mouse PowerOn [Disabled]
Enables or Disables BIOS ACPI Auto Configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Enable ACPI Auto Configuration

This item enables or disables BIOS ACPI auto configuration.

Options: Disabled (Default) / Enabled

Enable Hibernation

This item enables or disables system ability to hibernate (OS/S4 sleep state)/ This option may be not effective with some OS.

Options: Enabled (Default) / Disabled

ACPI Sleep State

This item selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.

Options: S1 (CPU Stop Clock) (Default) / Suspend Disabled / S3 (Suspend to RAM)

Lock Legacy Resources

This item enables or disables lock of legacy resources.

Options: Disabled (Default) / Enabled

S3 Video Repost

This item enables or disables S3 Video Repost..

Options: Disabled (Default) / Enabled

PME Wake up from S5

This item enables the system to wake from S5 using PEM event.

Options: Disabled (Default) / Enabled

Wake system with Fixed Time
This item enables or disables the system to wake on by alarm event. When this item is enabled, the system will wake on the hr::min::sec specified.
Options: Disabled (Default) / Enabled

Wake up date
You can choose which date the system will boot up.

Wake up hour / Wake up minute / Wake up second
You can choose the system boot up time, input hour, minute and second to specify.

USB Device Wakeup from S3/S4
This item allows you to enable or disabled the USB resume from S3/S4 function.
Options: Disabled (Default) / Enabled

Restore AC Power Loss
This item enables the system to wake from S5 using Ring-In event.
Options: Power Off (Default) / Power On / Last State

Ring-In Wake up from S5
This item enables the system to wake from S5 using Ring-In event.
Options: Disabled (Default) / Enabled

PS2 Keyboard PowerOn
This item allows you to control the keyboard power on function.
Options: Disabled (Default) / Ctrl + Esc / Ctrl + F1 / Ctrl + Space / Any Key / Wake Key / Power Key / Ctrl + Alt + Space / Space

PS2 Mouse PowerOn
This item allows you to control the mouse power on function.
Options: Disabled (Default) / Enabled

CPU Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
CPU Configuration
Intel(R) Celeron(R) CPU 8030 @ 1.00GHz
CPU Signature 206a7
Microcode Patch 28
Max CPU Speed 1800 MHz
Min CPU Speed 800 MHz
CPU Speed 1800 MHz
Processor Cores 2
Intel HT Technology Not Supported
Intel VT-x Technology Supported
Intel SMX Technology Not Supported
64-bit Supported
L1 Data Cache 32 kB x 2
L1 Code Cache 32 kB x 2
L2 Cache 256 kB x 2
L3 Cache 2048 kB
Active Processor Cores [All]
Limit CPUID Maximum [Disabled]
Execute Disable Bit [Enabled]
Intel Virtualization Technology [Disabled]
Hardware Prefetcher [Enabled]
Adjacent Cache Line Prefetch [Enabled]
Number of cores to enable in each processor package.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Active Processor Cores
This item sets number of cores to enable in each processor package.
Options: All (Default) / 1 / 2 / 3

Limit CPUID Maximum
When the computer is booted up, the operating system executes the CPUID instruction to identify the processor and its capabilities. Before it can do so, it must first query the processor to find out the highest input value CPUID recognizes. This determines the kind of basic information CPUID can provide the operating system.
Options: Disabled (Default) / Enabled

Execute-Disable Bit
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3.).
Options: Enabled (Default) / Disabled

Intel Virtualization Technology
Virtualization Technology can virtually separate your system resource into several parts, thus enhance the performance when running virtual machines or multi interface systems.
Options: Disabled (Default) / Enabled

Hardware Prefetcher
The processor has a hardware prefetcher that automatically analyzes its requirements and prefetches data and instructions from the memory into the Level 2 cache that are likely to be required in the near future. This reduces the latency associated with memory reads.
Options: Enabled (Default) / Disabled

Adjacent Cache Line Prefetch
The processor has a hardware adjacent cache line prefetch mechanism that automatically fetches an extra 64-byte cache line whenever the processor requests for a 64-byte cache line. This reduces cache latency by making the next cache line immediately available if the processor requires it as well.
Options: Enabled (Default) / Disabled

TCC Activation offset
Offset from the factory TCC activation temperature
Options: 0 (Default)

CPU Max Current limit value (Amp)
The Maximum instantaneous current allow for Primary Plane.

IGFX Max Current limit value (Amp)
The Maximum instantaneous current allow for Secondary Plane.

SATA Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
SATA Controller(s) [Enabled]
SATA Mode Selection [IDE]
SATA Port 1 : Empty
SATA Port 2 : Empty
Enable or disable SATA Device.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

SATA Controller(s)

This item enables/disables Serial ATA Device.

Options: Enabled (Default) / Disabled

SATA Mode Selection

This item determines how SATA controller(s) operate.

Options: IDE (Default) / AHCI

** Note: mSATA function is optional.*

USB Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
USB Configuration
USB Devices:
1 Mouse, 2 Hubs
Legacy USB Support [Enabled]
USB3.0 Support [Enabled]
XHCI Hand-off [Enabled]
EHCI Hand-off [Disabled]
Port 60/64 Emulation [Enabled]
USB hardware delays and time-outs:
USB transfer time-out [20 sec]
Device reset time-out [20 sec]
Device power-up delay [Auto]
Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Legacy USB Support

This item determines if the BIOS should provide legacy support for USB devices like the keyboard, mouse, and USB drive. This is a useful feature when using such USB devices with operating systems that do not natively support USB (e.g. Microsoft DOS or Windows NT).

Options: Enabled (Default) / Disabled / Auto

USB3.0 Support
This item enables or disables USB3.0 (XHCI) controller support.
Options: Enabled (Default) / Disabled

XHCI Hand-Off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
Options: Enabled (Default) / Disabled

EHCI Hand-Off
This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.
Options: Disabled (Default) / Enabled

Port 60/64 Emulation
This item enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
Options: Enabled (Default) / Disabled

USB transfer time-out
The time-out value for Control, Bulk, and Interrupt transfers.
Options: 20 sec (Default) / 1 sec / 5 sec / 10 sec

Device reset time-out
The item sets USB mass storage device Start Unit command time-out.
Options: 20 sec (Default) / 10 sec / 30 sec / 40 sec

Device power-up delay
"Auto" uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.
Options: Auto (Default) / Manual

Device power-up delay in seconds
Delay range is 1 ~ 40 seconds, in one second increments.
Options: 5 (Default)

F81866 Super IO Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
F81866 Super IO Configuration
F81866 Super IO Chip F81866
Serial Port 1 Configuration
Serial Port 2 Configuration
Serial Port 3 Configuration
Serial Port 4 Configuration
Serial Port 5 Configuration
Serial Port 6 Configuration
UART IRQ Mode [PCI IRQ Sharing]
Parallel Port Configuration
UART1 RI Function [No any function]
UART2 RI Function [RING]
Watch Dog Degree [Second]
Watch Dog Timer 0
ASUS AWB [+11dB]
Set Parameters of Serial Port 1 (COMA)
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Serial Port 1 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=3F8h; IRQ=4 / IO=3F8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12

Serial Port 2 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2F8h; IRQ=3 / IO=3F8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=2F8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=3E8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12 / IO=2E8h; IRQ= 3, 4, 5, 6, 7,10, 11, 12

Serial Port 3 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2C0h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

Serial Port 4 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2C8h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

Serial Port 5 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2D0h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

Serial Port 6 Configuration

Serial Port

This item enables or disables Serial Port (COM).

Options: Enabled (Default) / Disabled

Change Settings

This item selects an optimal setting for Super IO device.

Options: Auto (Default) / IO=2D8h; IRQ=6 / IO=3F8h; IRQ=6 / IO=2F8h; IRQ=6 / IO=2C0h; IRQ=6 / IO=2C8h; IRQ=6 / IO=2D0h; IRQ=6 / IO=2D8h; IRQ=6

UART IRQ Mode

This item allows you to determine PCI IRQ sharing for OS (EX. Windows) ISA IRQ for DOS.

Options: PCI IRQ Sharing (Default) / ISA IRQ

Parallel Port Configuration

Parallel Port

This item enables or disables Parallel Port (LPT/LPTE).

Options: Enabled (Default) / Disabled

Change Settings

This item allows you to select an optimal setting for Super IO device.

Options: Auto (Default) / IO=378h; IRQ=5 / IO=378h; IRQ=5, 6, 7, 10, 11, 12 / IO=278h; IRQ=5, 6, 7, 10, 11, 12 / IO=3BCh; IRQ=5, 6, 7, 10, 11, 12

Device Mode

This item allows you to determine how the parallel port should function.

Options: STD Printer Mode (Default) / SPP Mode / EPP-1.9 and SPP Mode / EPP-1.7 and SPP Mode / ECP Mode / ECP and EPP 1.9 Mode / ECP and EPP 1.7 Mode /

UART1 RI Function

This item selects COM1 port pin 9 function.

Options: RING (Default) / +5V / +12V

UART2 RI Function

This item selects COM2 port pin 9 function.

Options: No any function (Default) / +5V / +12V

Watch Dog Degree

This item allows you to determine the functional degree of Watch Dog.

Options: Second (Default) / Minute

Watch Dog Timer

Options: 0 for disabled (Default) / Min=1, Max=65536

Audio AMP

This item adjusts external audio amplifier.

Options: +11dB (Default) / +14dB / +19dB / +25dB

F81866 H/W Monitor

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Advanced
Pc Health Status
Shutdown Temperature [Disabled]
Smart Fan Function [Disabled]
CPU temperature : +19 °C
System temperature : +29 °C
CPU Fan Speed : 2546 RPM
System Fan1 Speed : N/A
CPU Vcore : +1.000 V
DRAM Voltage : +1.528 V
+ 5V : +5.129 V
+12V : +12.320 V
+5VSB : +5.016 V
+3.3V : +3.424 V
+3.3VSB : +3.328 V
Shutdown Temperature
++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Shutdown Temperature

This item allows you to set up the CPU shutdown Temperature.

Options:Disabled (Default) / 70°C/158°F / 75°C/167°F / 80°C/176°F / 85°C/185°F / 90°C/194°F

Smart Fan Function

This item allows you to control the CPU Smart Fan function.

Options: Disabled (Default) / Enabled

CPU PPM Configuration

EIST

This item enables/disables Intel SpeedStep function.

Options: Enabled (Default) / Disabled

CPU C3/ C6/ C7 report

This item enables/disables C3 (ACPI C2)/ C6 (ACPI C3)/ C7 (ACPI C3) report to OS.

Options: Enabled (Default) / Disabled

Config TDP LOCK
This item allows you lock the config TDP control register..
Options: Disabled (Default) / Enabled

Long duration power limit
Long duration power limit in watts, 0 means factory default
Options: 120 (Default)

Long duration maintained
Time window which the long duration power is maintained
Options: 28 (Default)

Short duration power limit
Short duration power limit in watts, 0 means factory default
Options: 150 (Default)

ACPI T State
This item allows you enables/ disables ACPI T state support.
Options: Disabled (Default) / Enabled

3.3 Chipset Menu

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed of the CPU itself uses when communicating with its own special components.

Note

» *Beware of that setting inappropriate values in items of this menu may cause system to malfunction.*

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
PCH-IO Configuration
System Agent (SA) Configuration
PCH Parameters
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

PCH-IO Configuration

PCI Express Configuration

Onboard Lan1 / PEX 1_1/ Mini PCIE Slot

This item controls the PCI Express Root Port.

Options: Enabled (Default) / Disabled

ASPM

This item sets PCI Express Active State Power Management settings.

Options: Auto(Default) / Disabled / L0s / L1 / L0sL1

PCIe Speed

This item selects PCI Express port speed.

Options: Auto (Default) / Gen1 / Gen2

USB Configuration

XHCI Pre-Boot Driver

This item enables or disables XHCI Pre-Boot Driver support.

Options: Enabled (Default) / Disabled

XHCI Mode

This item sets the mode of operation of XHCI controller.

Options: Smart Auto (Default) / Auto / Enabled / Disabled

EHCI1/2

This item controls the USB EHCI (USB2.0) functions. One EHCI controller must always be enabled.

Options: Enabled (Default) / Disabled

PCI Azalia Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
PCH Azalia Configuration
Azalia [Enabled]
Azalia HDMI codec [Enabled]
Control Detection of the Azalia device.
Disabled = Azalia will be unconditionally disabled
Enabled = Azalia will be unconditionally Enabled
Auto = Azalia will be enabled if present, disabled otherwise.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Azalia

This item controls detection of the Azalia device.

Disabled = Azalia will be unconditionally disabled.

Enabled = Azalia will be unconditionally Enabled.

Auto = Azalia will be enabled if present, disabled otherwise.

Options: Enabled (Default) / Disabled

Azalia HDMI codec

This item enables or disables internal HDMI codec Port for Azalia

Options: Enabled (Default) / Disabled

EuP Control

When EuP Enabled, System meets EuP requirement.

Options: Disabled (Default) / Enabled

SLP_S4# Min. Assertion Width

Options: 4 to 5 seconds (Default) / 1 to 2 seconds / 3 to 4 seconds / 2 to 3 seconds / Disabled

System Agent (SA) Configuration

Graphics Configuration

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
Graphics Configuration
Primary Display [Auto]
Internal Graphics [Auto]
GTT Size [2MB]
Aperture Size [256MB]
DVMT Pre-Allocated [64M]
DVMT Total Gfx Mem [256M]
Gfx Low Power Mode [Disabled]
Graphics Performance Analyzers [Disabled]
LCD Control
Select which of IGFX/PEG/PCI Graphics device should be Primary Display Or select SG for Switchable Gfx.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F9: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Primary Display

This item selects which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx.

Options: Auto (Default) / IGFX / PEG

Internal Graphics

This item keeps IGD enabled based on the setup options.

Options: Auto (Default) / Disabled / Enabled

GTT Size

This item selects GTT Size.

Options: 2MB (Default) / 1MB

Aperture Size

This item selects Aperature Size.

Options: 256MB (Default) / 128MB / 512MB

DVMT Pre-Allocated

This item selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

Options: 64M (Default) / 32M / 96M / 128M / 160M / 192M / 224M / 256M / 288M / 320M / 352M / 384M / 416M / 448M / 480M / 512M / 1024M

DVMT Total Gfx Mem

This item selects DVMT5.0 Total Graphic Memory size used by the Internal Graphics Device.

Options: 256MB (Default) / 128MB / MAX

Gfx Low Power Mode

This option is applicable for SFF only

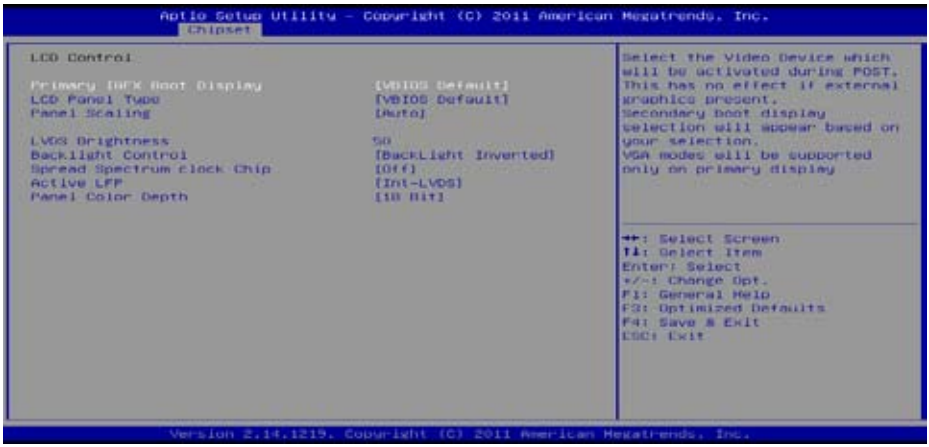
Options: Disabled (Default) / Enabled

Graphics Performance Analyzers

This item is enables/ disables Intel graphics performance analyzers counters.

Options: Disabled (Default) / Enabled

LCD Control


Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
LCD Control
Primary IGFX Boot Display [VBIOS Default]
LCD Panel Type [VBIOS Default]
Panel Scaling [Auto]
LVDS Brightness 50
Backlight Control [BackLight Inverted]
Spread Spectrum Clock Chip [Off]
Active LFP [Int-LVDS]
Panel Color Depth [18 Bit]
Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA modes will be supported only on primary display
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Primary IGFX Boot Display

This item selects the video device which will be activated during POST. This has no effect if external graphics present.

Options: VBIOS Default (Default) / CRT / LVDS / HDMI (optional)

LCD Panel Type

This item selects the LCD panel used by Internal Graphics Device by selecting the appropriate setup item.

Options: VBIOS Default (Default) / 640 x 480 / 800 x 600 / 1024 x 768 / 1280 x 1024 / 1400 x 1050(RB) / 1400 x 1050 / 1600 x 1200 / 1366 x 768 / 1680 x 1050 / 1920 x 1200 / 1440 x 900 / 1600x 900 / 1024 x 768 / 1280 x 800 / 1920 x 1080 / 2048 x 1536

Panel Scaling

This item selects the LCD panel scaling option used by the Internal Graphics Device.

Options: Auto (Default) / Force Scaling / Off

LVDS Brightness

This item selects the LCD panel brightness percentage.

Backlight Control
This item selects Back Light Control Setting
Options: BackLight Inverted (Default) / BackLight Normal
Spread Spectrum clock Chip
>>Hardware: Spread is controlled by chip; >>Software: Spread is controlled by BIOS
Options: Off (Default) / Hardware / Software
Active LFP
This item selects the Active LVDS Configuration. No LVDS: VBIOS does not enable LVDS; Int-LVDS: VBIOS enables LVDS driver by integrated encoder.
Options: Int-LVDS (Default) / No LVDS
Panel Color Depth
This item selects the LFP Panel Color Depth
Options: 18Bit (Default) / 24Bit

Memory Configuration

Memory Insight

DDR3_A1/B1 Information
These items display SPD information of DDR3 memory.

DIMM Profile

Select DIMM timing profile that should be used.

Options: Default DIMM profile (Default) / Custom Profile

Custom Profile Control

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Chipset
Memory Timing Information
Memory Frequency
CAS Latency (tCL)
CAS to RAS (tRCDmin)
Row Precharge (tRPmin)
Active to Precharge (tRASmin)
Write Recovery (tWRmin)
Refresh Recovery (tRFCmin)
Row Active to Row Active (tRRDmin)
Internal Write to Read Command (tW
Internal Read to Precharge Command
Four Activate Window (tFAWmin)
Memory Timing Configuration
Memory Frequency Limiter [1333]
CAS# Latency(tCL) 9
RAS# to CAS# Delay(tRCD) 9
Row Precharge Time(tRP) 9
RAS# Active Time(tRAS) 24
Write Recovery Time(tWR) 10
Row Refresh Cycle Time(tRFC) 107
Active to Active Delay(tRRD) 4
Write to Read Delay(tWTR) 5
Read CAS# Precharge(tRTP) 5
Four Active Window Delay(tFAW) 20
Maximum Memory Frequency Selections in Mhz.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

CAS# Latency (tCL)

This item allows you to select CAS Latency of DDR3.

Options: 9 (Default) / 3 ~ 15

RAS# to CAS# Delay (tRCD)

This item allows you to select Row Address to Column Address Delay of DDR3.

Options: 9 (Default) / 3 ~ 15

Row Precharge Time (tRP)

This item allows you to select Row Precharge Time of DDR3.

Options: 9 (Default) / 3 ~ 15

RAS# Active Time (tRAS)

This item allows you to select Row Active Time of DDR3.

Options: 24 (Default) / 9 ~ 63

Write Recovery Time (tWR)

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 10 (Default) / 3 ~ 31

Row Refresh Cycle Time (tRFC)

This item allows you to select Minimum Refresh Recovery Time of DDR3.

Options: 107 (Default) / 15 ~ 255

Active to Active Delay (tRRD)

This item allows you to select Row Active to Row Active Delay of DDR3.

Options: 4 (Default) / 4 ~ 15

Write to Read Delay (tWTR)

This item allows you to select Internal Write to Read Command Delay of DDR3.

Options: 5 (Default) / 3 ~ 31

Read CAS# Precharge (tRTP)

This item allows you to select Read to Precharge Delay of DDR3.

Options: 5 (Default) / 4 ~ 15

Four Active Window Delay (tFAW)
This item allows you to select Four Active Window Delay of DDR3.
Options: 20 (Default) / 4 ~ 63

Memory Frequency Limiter
Maximum Memory Frequency Selections in MHz.
Options: Auto (Default) / 1067 / 1333

Max TOLUD
This item sets maximum value of TOLUD. Dynamic assignment would adjust TOLUD automatically based on largest MMIO length of installed graphic controller.
Options: Dynamic (Default) / 1 GB / 1.25 GB / 1.5 GB / 1.75 GB / 2 GB / 2.25 GB / 2.5 GB / 2.75 GB / 3 GB / 3.25 GB

Memory Scrambler
This item enables or disables memory scrambler support.
Options: Enabled (Default) / Disabled

MRC Fast Boot
This item enables or disables MRC Fast Boot.
Options: Enabled (Default) / Disabled

Scrambler Seed Generation Off
This item sets control memory scrambler seed generation.
Enable – do not generation scrambler seed. Disable – generation scrambler seed always.
Options: Disabled (Default) / Enabled

Memory Remap
This item enables or disables memory remap above 4G.
Options: Enabled (Default) / Disabled

3.4 Boot Menu

This menu allows you to setup the system boot options.

Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.
Options: 2 (Default)

Bootup NumLock State

This item selects the keyboard NumLock state.
Options: On (Default) / Off

Full Screen LOGO Display

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Enabled (Default) / Disabled

Fast Boot

This item allows you to enable/disable Full Screen LOGO Show function.
Options: Disabled (Default) / Enabled

Skip VGA

If enabled, BIOS will skip EFI VGA driver.
Options: Disabled (Default) / Enabled

Skip USB

If enabled, USB devices will not be available until after OD boot. If disabled, USB device will be available before OS boot.
Options: Disabled (Default) / Enabled

Skip PS2

If enabled, PS2 devices will be skipped.
Options: Disabled (Default) / Enabled

GateA20 Active

Upon Request – GA20 can be disabled using BIOS services. Always – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB
Options: Upon Request (Default) / Always

Option ROM Messages

This item sets the display mode for Option ROM.
Options: Force BIOS (Default) / Keep Current

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When set to Enabled, this item allows the option ROMs to trap interrupt 19.
Options: Enabled (Default) / Disabled

CSM Support

This item enables / disables CSM Support. If Auto is selected, based on OS, CSM will be enabled / disabled automatically.
Options: Enabled (Default) / Disabled / Auto

Boot Success Beep

When this item is set to Enabled, BIOS will let user know boot success with beep.
Options: Enabled (Default) / Disabled

UEFI oot

This option enables/disables boot from the UEFI Devices.
Options: Disabled (Default) / Enabled

3.5 Security Menu

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Administrator Password
User Password
Set Administrator Password
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1212. Copyright (C) 2011 American Megatrends, Inc.

Administrator Password

This item sets Administrator Password.

User Password

This item sets User Password.

3.6 Exit Menu

This menu allows you to load the optimal default settings, and save or discard the changes to the BIOS items.

Aptio Setup Utility – Copyright (C) 2011 American Megatrends, Inc.
Main Advanced Chipset Boot Security Save & Exit
Discard Changes and Exit
Save Changes and Reset
Restore Defaults
Boot Override
Exit system setup without saving any changes.
↔: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.

Discard Changes and Exit

Abandon all changes made during the current session and exit setup.

Save Changes and Reset

Reset the system after saving the changes.

Restore Defaults

This selection allows you to reload the BIOS when problem occurs during system booting sequence. These configurations are factory settings optimized for this system.

Chapter 4: Useful help

4.1 Driver Installation

After you installed your operating system, please insert the Fully Setup Driver DVD into your optical drive and install the driver for better system performance.
You will see the following window after you insert the DVD

The setup guide will auto detect your motherboard and operating system.

Note

» *If this window didn't show up after you insert the Driver DVD, please use file browser to locate and execute the file SETUP.EXE under your optical drive.*

A. Driver Installation

To install the driver, please click on the Driver icon. The setup guide will list the compatible driver for your motherboard and operating system. Click on each device driver to launch the installation program.

B. Software Installation

To install the software, please click on the Software icon. The setup guide will list the software available for your system, click on each software title to launch the installation program.

C. Manual

Aside from the paperback manual, we also provide manual in the Driver DVD. Click on the Manual icon to browse for available manual.

Note

» *You will need Acrobat Reader to open the manual file. Please download the latest version of Acrobat Reader software from http://www.adobe.com/products/acrobat/readstep2.html*

4.2 AMI BIOS Beep Code

Boot Block Beep Codes

Number of Beeps	Description
Continuing	Memory sizing error or Memory module not found

POST BIOS Beep Codes

Number of Beeps	Description
1	Success booting.
8	Display memory error (system video adapter)

4.3 AMI BIOS post code

Checkpoint	Description
03	Disable NMI, Parity, video for EGA, and DMA controllers. Initialize BIOS, POST, Runtime data area. Also initialize BIOS modules on POST entry and GPNV area. Initialized CMOS as mentioned in the Kernel Variable "wCMOSFlags."
04	Check CMOS diagnostic byte to determine if battery power is OK and CMOS checksum is OK. Verify CMOS checksum manually by reading storage area. If the CMOS checksum is bad, update CMOS with power-on default values and clear passwords. Initialize status register A. Initializes data variables that are based on CMOS setup questions. Initializes both the 8259 compatible PICs in the system
05	Initializes the interrupt controlling hardware (generally PIC) and interrupt vector table.
06	Do R/W test to CH-2 count reg. Initialize CH-0 as system timer. Install the POSTINT1Ch handler. Enable IRQ-0 in PIC for system timer interrupt. Traps INT1Ch vector to "POSTINT1ChHandlerBlock."
07	Fixes CPU POST interface calling pointer.
08	Initializes the CPU. The BAT test is being done on KBC. Program the keyboard controller command byte is being done after Auto detection of KB/MS using AMI KB-5.
C0	Early CPU Init Start -- Disable Cache – Init Local APIC.
C1	Set up boot strap processor Information.
C2	Set up boot strap processor for POST.
C5	Enumerate and set up application processors.
C6	Re-enable cache for boot strap processor.
C7	Early CPU Init Exit.
0A	Initializes the 8042 compatible Key Board Controller.
0B	Detects the presence of PS/2 mouse.
0C	Detects the presence of Keyboard in KBC port.
0E	Testing and initialization of different Input Devices. Also, update the Kernel Variables. Traps the INT09h vector, so that the POST INT09h handler gets control for IRQ1. Uncompress all available language, BIOS logo, and Silent logo modules.
13	Early POST initialization of chipset registers.
20	Relocate System Management Interrupt vector for all CPU in the system.
24	Uncompress and initialize any platform specific BIOS modules. GPNV is initialized at this checkpoint.
2A	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information.
2C	Initializes different devices. Detects and initializes the video adapter installed in the system that have optional ROMs.
2E	Initializes all the output devices.
31	Allocate memory for ADM module and uncompress it. Give control to ADM module for initialization. Initialize language and font modules for ADM. Activate ADM module.
33	Initializes the silent boot module. Set the window for displaying text information.
37	Displaying sign-on message, CPU information, setup key message, and any OEM specific information.
38	Initializes different devices through DIM. See DIM Code Checkpoints section of document for more information. USB controllers are initialized at this point.
39	Initializes DMAC-1 & DMAC-2.
3A	Initialize RTC date/time.
3B	Test for total memory installed in the system. Also, Check for DEL or ESC keys to limit memory test. Display total memory in the system.
3C	Mid POST initialization of chipset registers.

Checkpoint	Description
40	Detect different devices (Parallel ports, serial ports, and coprocessor in CPU, etc.) successfully installed in the system and update the BDA, EBDA…etc.
52	Updates CMOS memory size from memory found in memory test. Allocates memory for Extended BIOS Data Area from base memory. Programming the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.
60	Initializes NUM-LOCK status and programs the KBD typematic rate.
75	Initialize Int-13 and prepare for IPL detection.
78	Initializes IPL devices controlled by BIOS and option ROMs.
7C	Generate and write contents of ESCD in NVRam.
84	Log errors encountered during POST.
85	Display errors to the user and gets the user response for error.
87	Execute BIOS setup if needed / requested. Check boot password if installed.
8C	Late POST initialization of chipset registers.
8D	Build ACPI tables (if ACPI is supported).
8E	Program the peripheral parameters. Enable/Disable NMI as selected.
90	Initialization of system management interrupt by invoking all handlers. Please note this checkpoint comes right after checkpoint 20h.
A1	Clean-up work needed before booting to OS.
A2	Takes care of runtime image preparation for different BIOS modules. Fill the free area in F000h segment with 0FFh. Initializes the Microsoft IRQ Routing Table. Prepares the runtime language module. Disables the system configuration display if needed.
A4	Initialize runtime language module. Display boot option popup menu.
A7	Displays the system configuration screen if enabled. Initialize the CPU's before boot, which includes the programming of the MTRR's.
A9	Wait for user input at config display if needed.
AA	Uninstall POST INT1Ch vector and INT09h vector.
AB	Prepare BBS for Int 19 boot. Init MP tables.
AC	End of POST initialization of chipset registers. De-initializes the ADM module.
B1	Save system context for ACPI. Prepare CPU for OS boot including final MTRR values.
00	Passes control to OS Loader (typically INT19h).

4.4 Troubleshooting

Probable	Solution
1. There is no power in the system. Power LED does not shine; the fan of the power supply does not work 2. Indicator light on keyboard does not shine.	1. Make sure power cable is securely plugged in. 2. Replace cable. 3. Contact technical support.
System is inoperative. Keyboard lights are on, power indicator lights are lit, and hard drives are running.	Using even pressure on both ends of the DIMM, press down firmly until the module snaps into place.
System does not boot from a hard disk drive, but can be booted from optical drive.	1. Check cable running from disk to disk controller board. Make sure both ends are securely plugged in; check the drive type in the standard CMOS setup. 2. Backing up the hard drive is extremely important. All hard disks are capable of breaking down at any time.
System only boots from an optical drive. Hard disks can be read, applications can be used, but system fails to boot from a hard disk.	1. Back up data and applications files. 2. Reformat the hard drive. Re-install applications and data using backup disks.
Screen message shows “Invalid Configuration” or “CMOS Failure.”	Review system’s equipment. Make sure correct information is in setup.
System cannot boot after user installs a second hard drive.	1. Set master/slave jumpers correctly. 2. Run SETUP program and select correct drive types. Call the drive manufacturers for compatibility with other drives.

CPU Overheated

If the system shutdown automatically after power on system for seconds, that means the CPU protection function has been activated.

When the CPU is over heated, the motherboard will shutdown automatically to avoid a damage of the CPU, and the system may not power on again.

In this case, please double check:
1. The CPU cooler surface is placed evenly with the CPU surface.
2. CPU fan is rotated normally.
3. CPU fan speed is fulfilling with the CPU speed.

After confirmed, please follow steps below to relief the CPU protection function.
1. Remove the power cord from power supply for seconds.
2. Wait for seconds.
3. Plug in the power cord and boot up the system.

Or you can:
1. Clear the CMOS data. (See “Close CMOS Header: JCMOS1” section)
2. Wait for seconds.
3. Power on the system again.

» *Release Date: 2013/01/22*